K-8 Critical Areas Lead to Coherent Curriculum

The **purpose** of this process is to facilitate discussion among educators in a school district and/or curriculum consortium to understand the focus and coherence of the Montana Common Core Standards (MCCS) and to support the development of a coherent set of Common Core curriculum documents.

Less topic coverage can be associated with higher scores on those topics covered because students have more time to master the content that is taught.
–Ginsburg et al., 2005, *Reassessing U.S. International Mathematics Performance: New Findings from the 2003 TIMSS and PISA*

"Focus and coherence are the two major evidence-based design principles of the Common Core State Standards for Mathematics. These principles are meant to fuel greater achievement in a rigorous curriculum, in which students acquire conceptual understanding, procedural skill and fluency, and the ability to apply mathematics to solve problems. Thus, the implications of the standards for mathematics education could be summarized briefly as follows:

Focus: focus strongly where the standards focus
Coherence: think across grades, and link to major topics in each grade
Rigor: in major topics, pursue with equal intensity

- conceptual understanding,
- procedural skill and fluency, and
- applications"

– McCallum et. al., 2012, *K-8 Publishers' Criteria for the Common core State Standards for Mathematics*

Use Montana Common Core Standards Grade Level documents to complete the process outlined below. Remember the standards are organized by domains. Within each domain there are cluster headings that state the understanding; the standards within the cluster heading delineate what students need to know and be able to do to reach the understanding or cluster heading statement.

Grade 4 example for Number Base Ten Domain:

Cluster heading: Grade 4	Code: Grade 4. NumberBaseTen. Standard	Standard: What student should know and be able to do
4.NBT Use place value understanding and properties of operations to perform multi-digit arithmetic.	4.NBT.4	Fluently dd and subtract multi-digit whole numbers using the standard algorithm. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)
	4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)
	4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)

1. Analyze and discuss the content for each of the grade level's Critical Areas of Focus.	•What are the concepts? •What are the procedures and skills? •What are the key mathematical practices? •What are the relationships students are to make? •What further information is needed? For example, at Grade 5, what does fluency mean? What are appropriate models for representing this learning?
2. Identify and discuss the connections among the domains, clusters and standards within each of the grade level's Critical Areas of Focus.	•What are the relationships among the domains, clusters and standards? •Why is each relationship important? •How does the Critical Area of Focus description inform the instruction of the related domains, clusters and standards?
3. Identify and discuss any connections across the Critical Areas of Focus within the grade level.	•For example, Grade 3 Critical Areas of Focus #1 and #3 are connected by Measurement and Data standard #7: relating arrays for multiplication with concepts of area.
4. Compare each Critical Area of Focus to those for the preceding and succeeding grades to become familiar with previous and future learning.	•What understandings does this learning build upon? •What are the related future understandings?
5. Compare and contrast the Common Core State Standards to the current district curriculum.	•What is taught now but not in the Common Core? •What content is essentially the same? Identify the differences. •What will be new content for this grade?

Adapted from the Ohio Department of Education, *Mathematics – K-8 Critical Areas of Focus 2/3/2011*

Note: The Common Core State Standards did not write specific Critical Areas of Focus for the high school conceptual categories. However, the Model Pathways (Appendix A) did identify Critical Areas of Focus for each course in both the traditional and integrated model.